

**WHAT IS CLAIMED IS:**

1. A method for detecting lymph nodes in a human, comprising:
  - introducing a fluorescent contrast agent into a lymphatic system of a body;
  - directing time-varying excitation light into the tissue of the body;
  - causing the time-varying excitation light to contact a lymph node of the lymphatic system, whereby a time-varying emission light is generated;
  - detecting the time-varying emission light at a surface of the body;
  - filtering the time-varying emission light to reject excitation light re-emitted from the lymph node; and
  - imaging the lymph node of the lymphatic system.
2. The method of Claim 1, wherein introducing the fluorescent contrast comprises introducing indocyanine green ("ICG").
3. The method of Claim 1, wherein directing time-varying excitation light into the tissue of the body comprises directing time-varying excitation light into the body with a light source selected from the group consisting of a pulse, a series of pulses, pseudo random modulation, sinusoidally modulated light, and a wave.
4. The method of Claim 1, wherein generated time-varying emission light has a spatial distribution selected from the group consisting of a spherical wave, a planar wave, a series of lines of illumination, concentric circles of illumination, and a ronchi rule pattern.
5. The method of Claim 1, further comprising modulating the intensity of the excitation light to obtain a wavelength between approximately 700 nm and 900 nm.

6. The method of Claim 1, wherein causing the excitation light to contact a lymph node of the lymphatic system comprises causing the excitation light to contact a sentinel lymph node of the lymphatic system.

7. A system for detecting lymph nodes in a human, comprising:  
a laser diode operable to direct time-varying near-infrared excitation  
light into the tissue of a body;  
an image intensifier operable to detect, at a surface of the body, a  
5 redshifted and time-varying emission light generated by the near-infrared  
time-varying excitation light contacting a lymph node of the lymphatic  
system;  
one or more optical filters operable to reject excitation light re-emitted  
from the lymph node; and  
10 an imaging apparatus operable to image the lymph node of the  
lymphatic system.

8. The system of Claim 7, further comprising a fluorescent contrast agent  
adapted to be injected into a lymphatic system of a body, the fluorescent contrast  
15 agent selected from the group consisting of a non-specific fluorescent contrast agent  
and a specific fluorescent contrast agent.

9. The system of Claim 7, wherein the near-infrared time-varying  
excitation light is selected from the group consisting of a spherical wave, a planar  
20 wave, a series of lines of illumination, concentric circles of illumination, and a ronchi  
rule pattern.

10. The system of Claim 7, further comprising a frequency generator to  
modulate the intensity of the near-infrared time-varying excitation light to obtain a  
25 wavelength between approximately 700 nm and 900 nm.

11. The system of Claim 7, wherein the one or more optical filters are  
selected from the group consisting of a band pass filter, a long pass filter, and a  
holographic notch filter.

12. The system of Claim 7, wherein the one or more optical filters comprises any combination of the following filters: a band pass filter, a long pass filter, and a holographic notch filter.

5 13. The system of Claim 7, wherein the lymph node of the lymphatic system comprises a sentinel lymph node.

14. The system of Claim 7, wherein the imaging device is a charge coupled device camera.

15. A method for detecting lymph nodes in a human, comprising:  
introducing a fluorescent contrast agent into a lymphatic system of a  
body;  
5 directing into the tissue of the body near-infrared time-varying  
excitation light modulated to obtain a wavelength between approximately 700  
nm and 900 nm;  
causing the near-infrared time-varying excitation light to contact a  
sentinel lymph node of the lymphatic system, whereby a redshifted and time-  
varying emission light is generated;  
10 detecting the generated time-varying emission light at a surface of the  
body;  
optically filtering the generated time-varying emission light to reject  
excitation light re-emitted from the sentinel lymph node;  
15 quantitizing a fluorescence characteristic throughout at least a portion  
of the sentinel lymph node from the generated time-varying emission light by  
establishing a number of values with a processor, each of the values  
corresponding to a level of the fluorescence characteristic at a different  
position within the sentinel lymph node, the level of the fluorescence  
characteristic varying with a composition of the sentinel lymph node; and  
20 imaging the sentinel lymph node in accordance with the values.

16. The method of Claim 15, wherein introducing the fluorescent contrast  
agent comprises introducing indocyanine green ("ICG").

25 17. The method of Claim 15, wherein directing into the tissue of the body  
near-infrared time-varying excitation light comprises directing into the tissue of the  
body time-varying excitation light with a light source selected from the group  
consisting of a pulse, a series of pulses, pseudo random modulation, sinusoidally  
modulated light, and a square wave.

18. The method of Claim 15, wherein the fluorescence characteristic corresponds to at least one of fluorescence lifetime, fluorescence quantum efficiency, fluorescence yield, and fluorescence uptake.

5 19. The method of Claim 15, wherein quantitizing a fluorescence characteristic further comprises determining the values from a mathematical relationship modeling light scattering behavior of the portion of the sentinel lymph node.

10 20. The method of Claim 19, wherein the mathematical relationship corresponds to a diffusion equation approximation of multiply scattered light.

21. A method of lymph node analysis of humans, comprising:  
exposing a lymph node to an excitation light with a pre-determined  
time varying intensity, the lymph node multiply scattering the excitation light;  
detecting a multiply scattered light emission from the lymph node in  
response to said exposing;  
determining a number of values from the emission with a processor,  
the values each corresponding to a level of a fluorescence characteristic at a  
different position within the lymph node, the level of the characteristic varying  
with lymph node composition; and  
generating an image of lymph node compositional variation in  
accordance with the values.

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15 22. The method of Claim 21, wherein exposing the lymph node to an  
excitation light comprises exposing the lymph node to a near-infrared time-varying  
excitation light.

23. The method of Claim 21, wherein the fluorescence characteristic  
corresponds to at least one of fluorescence lifetime, fluorescence quantum efficiency,  
fluorescence yield, and fluorescence uptake.